

## DETAILED ACTION

### ***Continued Examination Under 37 CFR 1.114***

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 03/10/2010 has been entered.

### ***Claim Rejections - 35 USC § 103***

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

**Claims 34-38, 43, 45-54, 59-60, 62-67, 69 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Neraal (GB 968,331) in view of Wulf et al (Relationships among glycolytic potential, dark cutting (dark, firm, and dry) beef, and cooked beef palatability).**

In regard to claims 34 and 50, Neraal discloses a method of treating meat derived from meat carcass after onset of rigor mortis with an amount of pH-lowering agent sufficient to lower pH of the meat and improve the meat color.

In regard to claim 34, Neraal is silent as to the dark-cutting carcass.

However, Neraal discloses that the color of the meat depends on its pH (page 1 lines 9-11). Neraal further discloses that "a too strong increase in the meat's pH will, however, have an unfortunate effect upon its colouring" (page 1 lines 29-33). Neraal

Art Unit: 1781

further discloses that unfavorable oxidation of myoglobin (meat's red coloring agent) occurs at pH above 6.5 and below 5.2. therefore, Neraal discloses improvement of meat color by lowering pH of the meat product up to 5.2 by treatment of meat with a pH lowering composition.

Wulf et al discloses that 2.7% increase of the incidence of dark-cutting carcasses costs the beef industry \$172 million annually (Introduction p. 1895). Wulf et al discloses that "[d]ark cutting beef results from cattle with lower-than-normal muscle glycogen stores at the time of slaughter, which causes lower-than-normal lactic acid production after slaughter and a higher-than-normal ultimate meat pH" (Introduction p. 1895). Wulf et al discloses various problems associated with dark-cutting meat due to the high pH values of such meat. Wulf et al discloses that "[d]ark cutting beef is undesirable because it is aesthetically unpleasant and because it is more susceptible to microbial growth" (Introduction p. 1895). Wulf et al discloses identifying meat in a dark-cutting carcass by evaluating grading pH and color (page 1896 col. 1 §§ 2-3).

Since dark-cutting carcasses have deficient color, undesirable, aesthetically unpleasant and more susceptible to microbial growth, one of ordinary skill in the art would have been motivated to modify Neraal et al and to employ pH reducing treatment for meat derived from dark-cutting carcasses in order to reduce pH to the values associated with normal beef. One of ordinary skill in the art would have been motivated to do so in order to improve the color of meat, and also to produce more desirable, aesthetically pleasant and less susceptible to microbial growth meat cuts. Since Wulf disclose vast financial costs for beef industry associated with production of dark-cutting

Art Unit: 1781

carcasses, one of ordinary skill in the art would have been motivated to employ pH reducing treatment in order to improve appearance, appeal to a consumer and value of the meat product, which would lead to higher appraisal and increase in sales of such meat product. One of ordinary skill in the art would have been motivated to employ pH reducing treatment for meat derived from the dark-cutting carcasses, since Wulf et al discloses various deficiencies of dark-cutting meat associated with abnormally high pH.

In regard to the limitation of lightening the color of the meat due to the addition of the pH lowering agent (claims 34, 35, 50 and 52), it is noted that Wulf et al discloses lighter color for beef having lower (normal) pH, and darker color for beef having higher (abnormal) pH. Since Neraal discloses reduction of pH to normal values in meats, and Wulf discloses lighter color for lower pH meat, then the lightening effect would have been expected to take place as an inherent result of the pH reduction treatment. Further in this regard, although the references do not specifically disclose every possible quantification or characteristic of its product, such as lightening of the meat color due to the addition of the pH lowering agent, this characteristic would have been expected to be as claimed absent any clear and convincing evidence and/or arguments to the contrary. The combination of references disclose the same starting materials and methods as instantly (both broadly and more specifically) claimed, and thus one of ordinary skill in the art would recognize that the lightening of color, among many other characteristics of the product obtained by referenced method, would have been an inherent result of the process disclosed therein. The Patent Office does not possess the facilities to make and test the referenced method and product obtain by such method,

Art Unit: 1781

and as reasonable reading of the teachings of the references has been applied to establish the case of obviousness, the burden thus shifts to applicant to demonstrate otherwise.

In regard to claim 35 and 51, Neraal discloses at least one pH-lowering agent comprises at least one acidulant (page 1 lines 50-85).

In regard to claims 37 and 53, it is noted that the dark cutting meat typically has a pH as claimed.

In regard to claims 38 and 54, Neraal discloses organic acids as acidulants (page 1 lines 60-61).

In regard to claims 43, 59 and 60, Neraal does not disclose packaging. However, packaging is seen to have been a conventional step in the meat products manufacture. Therefore, to package meat either prior or after the treatment would have been obvious.

In regard to claims 45-47 and 62-64, Neraal discloses phosphates (page 1 lines 51-52, 74-75).

In regard to claims 48-49 and 65-66, Neraal discloses ascorbic acid (page 1 lines 50-85).

In regard to claims 67, 69 and 70, Neraal discloses sausages that are intended for further cooking (Example 1-4).

**Claims 39- 42 and 55-58 are rejected under 35 U.S.C. 103(a) as being unpatentable Neraal (GB 968,331) in view of Wulf et al (Relationships among glycolytic potential, dark cutting (dark, firm, and dry) beef, and cooked beef**

Art Unit: 1781

**palatability) as applied to claim 34 and further in view of Formanek et al (US 6,379,739).**

Neraal and Wulf et al are taken as cited above.

In regard to claims 39- 42 and 55-58, Neraal is silent as to the tumbling, injecting, marinating or drip/rest of meat. However, tumbling, injecting, marinating or drip/rest of are standard processes in meat curing and manufacture. Further in this regard, Formanek et al discloses contacting meats with acidulant systems comprising citric acid by marinating, static soaking, injecting or tumbling (Col. 1 lines 20-25, col. 2 lines 58-67, col. 3 lines 1-6). Since both Neraal and Formanek et al disclose contacting meat with acidulant system, one of ordinary skill in the art would have been motivated to modify combination of Neraal and Wulf et al and to employ any known method of contacting acidulant solution with meat as taught by Formanek et al. One of ordinary skill in the art would have been motivated to use either marinating, static soaking, injecting or tumbling as a conventional method of contacting meat with acidulant system. One of ordinary skill in the art would also have been motivated to employ drip/rest period after contacting meat with acidulants in order to ensure that desired amount of acidulant solution was contacted with meat.

**Claims 44 and 61 are rejected under 35 U.S.C. 103(a) as being unpatentable Neraal (GB 968,331) in view of Wulf et al (Relationships among glycolytic potential, dark cutting (dark, firm, and dry) beef, and cooked beef palatability) as applied to claim 34 and further in view Holdren et al (5,736,186).**

Neraal and Wulf et al are taken as cited above.

Art Unit: 1781

In regard to claims 39- 42 and 55-58, Neraal is silent as to the encapsulated organic acid. Holdren et al discloses encapsulation of acidulants in order to control the release of acidulant during the contact with meat (Col. 5 bottom paragraph, Col. 6). Since both Neraal and Holdren disclose contact of meat with acidulant, it would have been obvious to encapsulate organic acid used in Neraal as taught by Holdren in order to control release of acidulant. One of ordinary skill in the art would have been motivated to encapsulate organic acid (acidulant), since it was well known to treat meat with encapsulated citric acid, as evidenced by Holdren et al.

### ***Response to Arguments***

Applicant's arguments with respect to claims rejection under 35 U.S.C. 103(a) have been considered but are moot in view of the new ground(s) of rejection.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to VERA STULII whose telephone number is (571)272-3221. The examiner can normally be reached on 7:00 am-3:30 pm, Monday-Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Keith Hendricks can be reached on (571) 272-1401. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1781

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Examiner, Art Unit 1781

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